CLAIMS:

1. A magnetic resonance imaging system comprising a reconstruction unit arranged to

- reconstruct a complex image of complex valued pixels from magnetic resonance signals
- compute a distribution of phase values of the complex image
- apply a phase correction to the complex image to form a corrected magnetic resonance image and
- control the phase correction on the basis of the distribution of phase values of the complex image.

2. A magnetic resonance imaging system as claimed in Claim 1, wherein the distribution of phase values of the complex image is represented by a histogram of the phase values of the complex image.

3. A magnetic resonance imaging method as claimed in Claim 2, wherein the phase correction is controlled on the basis of a test function of the histogram.

4. A magnetic resonance imaging system as claimed in Claim 3 wherein the test function of the histogram discriminates, in particular enhances peaks, peaks in the histogram from broader distributions.

5. A magnetic resonance imaging system as claimed in Claim 4, wherein the test function is formed by the histogram power function.

6. A magnetic resonance imaging system as claimed in Claim 1, wherein the reconstruction unit is arranged to make the phase correction on the basis of a polynomial phase correction, said polynomial being represented by its polynomial coefficients.

7. A magnetic resonance imaging method as claimed in Claim 6, wherein the reconstruction unit is arranged to control the phase correction by adjusting polynomial coefficients of the polynomial phase correction.

8. A magnetic resonance imaging system as claimed in Claim 3, wherein the reconstruction unit is arranged

- to make the phase correction on the basis of a polynomial phase correction and
- control the phase correction by adjusting polynomial coefficients of the polynomial phase correction so as to optimise the test function.

9. A magnetic resonance imaging system as claimed in Claim 8, wherein the polynomial coefficients are adjusted by way of a trial and improve algorithm controlled on the basis of the test function.

10. A magnetic resonance imaging method wherein

- a complex image of complex valued pixels is reconstructed from magnetic resonance signals
- a distribution of phase values of the complex image is computed
- a phase correction is applied to the complex image to form a corrected magnetic resonance image and
- the phase correction is controlled on the basis of the distribution of phase values of the complex image.

11. A computer programme comprising instructions to

- compute a distribution of phase values of a complex image
- apply a phase correction to the complex image to form a corrected magnetic resonance image and
- control the phase correction on the basis of the distribution of phase values of the complex image.